

## An Address

ON

## THE PROBLEM OF SUCCESS FOR MEDICAL WOMEN.\*

BY

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THAT the rapid progress made by women in the medical profession in the recent past—for it is scarcely fifty years since in October, 1874, the London School for Women was opened—does not continue to be so dramatic has no doubt led to some disappointment. But the changes have been so great that a little consideration of their significance will show that it is not only natural but advantageous that the period of upheaval should be followed by an interval of calm for efficient consolidation of the position. There is indeed a special need for emphasizing this at the present time—namely, the influence of the war; many of both sexes imagined that a millennium would follow, and perhaps women, with their more vivid imagination, and with the stimulus of the just recognition of their recent work in the war and the granting of the franchise as further reasons for high hopes, are less inclined to possess their souls in patience. The number of women members of Parliament is disproportionately small to those who have votes under the women's suffrage (1918), and shows that a rapid change is not necessarily succeeded at once by what may appear to be its logical sequence. Samuel Johnson's line "Slow rises worth by poverty depress'd" is perhaps not without its application and comfort.

The question of the need for, existence, and spheres of usefulness of women doctors is so far settled that further discussion would serve no useful end, and it is unnecessary to insist on the openings in private practice, and especially on the suitability of women for official posts in the various branches of the public health service and in India. But the present is an anxious time for the whole medical profession; the proportion of medical practitioners to the general population is now greater than at any period during the past fifty years, and since 1914 the number of women entering the profession has greatly increased. Thus to take figures kindly given me by Professor R. B. Wild: at the Victoria University of Manchester out of 153 women medical students entering between 1899, when women first entered, and 1918, not fewer than 105, or 67.8 per cent., started during the war. During and immediately after the war their services were much in request on account of the absence of men with the forces, but now with the number of men available the conditions have altered; indeed the competition for advertised posts plainly shows that the supply has more than overtaken the demand. No doubt the rush into the profession after the war carried in a number of entrants not so well equipped as in the past, and particularly in the case of women students, who in former times were "picked" and in more deadly earnest than the men students. This approach to overcrowding is probably a temporary state of affairs, for the peak of the wave of entries into the profession, though not that of qualifications, has passed. Nevertheless it must be recognized that our profession should be regarded as affording opportunities for a fine and ennobling life rather than a means of attaining ease and opulence. It is probably still true that it is easier to get a living of a sort in medicine than in the other learned professions, but as a trade proposition it takes a very humble rank. This, no doubt, applies with greater force to women's than to men's remuneration, and here, as will be suggested later in another connexion, the influence of tradition plays no inconsiderable part, for the lay public as a whole has not yet become accustomed to medical advisers other than those of the male sex. In maintaining the principle that sex should not make any difference in the emoluments of the medical profession

the British Medical Association has led the way and supported the Federation of Medical Women.

On an occasion such as this, when you are all looking forward to "the dim mystic future" with hope tinged by uncertainty as to your prospects, speculation is inevitable as to the changes and chances that beset the individual, and the personal characteristics, the opportunities, and accidents that determine success or failure. It may perhaps be opportune to examine briefly the difficult question of the factors bearing on the probability of success, a consummation capable of very various interpretations, for women doctors. This will involve some reference to the inherent properties of sex, incidence of genius, originality, and other mental characteristics, physical capabilities and health, and environmental influences.

Since the time of Darwin it has been recognized, though not without protest (Karl Pearson), that variability, both in body and mind, is more frequent in the male than in the female sex, so that genius, originality, and initiative, as well as idiocy and crime, are more frequent in men than in women, who tend to preserve a more equable level; men have a greater aptitude for abstract problems, women for concrete subjects.

Now taking into account only the factor of the vastly greater number of men than of women in the medical profession and remembering the relatively small percentage of men of outstanding ability that it has produced, it is surely not surprising that women doctors have so far not numbered among them any to rival Lister, R. Koch, Osler, and Horsley. Further, the number of women who give up the pursuit of medicine, before or after qualifying, is probably relatively much greater than in the case of men, mainly because marriage seriously depletes the ranks of women doctors; further it is widely held, though statistical proof of this would be difficult, that it is the ablest who thus fall by the way. It has been stated (Louisa Martindale) that 30 per cent. of all women doctors marry either before or after qualification, and, though what proportion of these retire from active practice is not known, it commonly must act as a handicap to women, whereas it is of necessity a stimulus to male practitioners. But to return to the sex incidence of genius—that extreme natural variation—there is, as just pointed out, the additional factor of greater uniformity among the female sex to reduce the probability of the occurrence of phenomenal ability among them.

Study of the world's history has convinced Mathilde and Mathias Vaerting, whose remarkable book *The Dominant Sex, A Study in the Sociology of Sex Differentiation* has recently been translated into English, that the relationships of the sexes as regards dominance vary in a manner resembling the swing of a pendulum; in a few instances women have had the upper hand, as in ancient Egypt, Sparta, the Garos in India, and the Iroquois; in the vast majority of nations, of course, men have been predominant, and very exceptionally the rights of the sexes have been nearly equal, as in the State of Wyoming; during the phase of male predominance there has been a conscious or unconscious tendency to obliterate the evidence of former feminine dominance, or, expressed more generally and at the same time more forcibly by the Vaertings, "history is perennially falsified by the prepotent ideology of the dominant sex." In nations under feminine dominance the woman supported the family and went out to work while the man was the housekeeper and domestic drudge; such division of labour is not ascribed to biological or physiological differences but depends on the dominance of sex; in fact the women of a nation in which the female sex is dominant become from the attendant circumstances physically fitter than the men, and the notion that inborn physiological differences between men and women determine the usual superiority of the male is argued to be due to confusion between cause and effect.

The force of tradition and the suggestion that man is the dominant partner is not easy to estimate accurately in regard to medicine; auto-suggestion may well be of some importance; but that a woman doctor would consciously abstain from research and striking out a new line because it is commonly regarded as peculiarly a man's sphere seems

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improbable. Nevertheless the tradition of maternal ancestors (feminine heredity) and its social influence on the early life of a generation that has witnessed the wide opening of careers to women cannot be neutralized at once, and its effects may persist for some time. That women as a class are inherently more law-abiding, more subject to what they regard as conventional, and more conservative might reasonably be interpreted as the outcome of long-continued subordination to men's ascendancy. More than a hundred years ago Sydney Smith<sup>1</sup> laughed at the idea that there was any inborn difference of intellectual capacity between men and women and argued that the conditions of education were entirely responsible for the existing differences. Further, in the Report of the Board of Education's Consultative Committee on the Differentiation of the Curricula for Boys and Girls respectively in Secondary Schools (1923) the opinion is expressed that there is little difference in intellectual capacity between the two sexes, though there are noticeable divergencies in emotional response as indicated by the degree of interest evinced for various studies, and that on the whole the apparent differences revealed up to the present by psychological inquiry would not seem to justify any serious differentiation in the actual curriculum.

It is obviously important and equally difficult to apportion accurately the influence of environment, tradition, and suggestion on the one hand, and hereditary and inborn tendencies on the other hand. The circumstances of women doctors and students of medicine, though infinitely better than sixty years ago when the struggle for any opportunities at all was in progress, are even now not so good as those of men; for example, the hospital facilities and appointments open to them are still restricted as compared with those of men. On the other hand it must be remembered that some of the best work done by men has been accomplished in the most unpromising surroundings; and it has been truly said, "genius does what it must, talent what it can."

Though much less than in the past, the sexes still lead different lives; girls are more prone than boys to follow an indoor and confined routine and so to impair or retard a robust physical development; and thus sexual peculiarities are accentuated. The physiological disabilities arising out of sex must be taken into very serious account as a weighty factor in determining women's chances of a successful struggle in intellectual work and practice of the profession of medicine. In 50 per cent. or more of women the monthly rhythm is a distinct handicap, and its manifestations are prone to be aggravated by a sedentary life and other factors prejudicial to a vigorous state of health, factors often inseparable from the life of a hard-worked doctor in town or institutional practice. For the greater part of their active life a large number of women are liable to recurrent interruptions in their state of efficiency and are thus at a grave disadvantage as compared with their male competitors; among men migraine, which might be regarded as comparable in its periodicity and effects, is relatively so rare that it rather tends to emphasize the reality of the women's burden.

Women have in a more developed degree than men the power of rapid perception or intuition, allied to second sight and clairvoyance, or of arriving at a correct solution of a problem *per saltum*. In his *In Defence of Women*, a book published in 1923 and in many respects Shavian in its daring, H. L. Mencken insists that so-called women's intuition is a high-grade form of keen intelligence which is rare in men and is then only found in men of special talent for the logical. Now this property—which is said never to have led to any discovery in science (Ludovici<sup>2</sup>), though both Darwin, who it is true silently spent twenty years in working it out, and A. Russel Wallace arrived at the conception of evolution by a flash—appears to be closely allied to imagination, which by providing possible explanations opens the road "to search and study out the secrets of nature by way of experiment." But apart from its potential use and application in research this faculty of arriving immediately at a correct opinion without the process of conscious ratiocination resembles the clinical instinct born of long years of experience and no doubt a function

of the unconscious, which is so invaluable in diagnosis and prognosis; hospital sisters often have this power, and when reinforced by a more extensive scientific training it should be an asset of women doctors.

The ability of women medical students has been abundantly shown by their distinctions in examinations. It may be interesting to compare the percentage of qualifications among men and women entering the medical profession. Sir James Paget's well known analysis in 1869 showed that of 1,000 medical students at St. Bartholomew's Hospital, 776, or 77.6 per cent., actually qualified; of Sir Squire Sprigge's smaller series of 250 students in the early eighties from St George's Hospital, 187, or 75 per cent., qualified. Miss L. M. Brooks, your warden, has kindly analysed for me the results of 700 students entering the London School of Medicine for Women between October, 1894, and July, 1914; of this number, 593, or 84.7 per cent., completed the qualification for which they entered; this proportion is much the same as that (about 85 per cent.) arrived at by the General Medical Council in 1907, and that (87 per cent.) of the students entering St. Thomas's Hospital in the years 1890-1899 (Edred Corner). As far, therefore, as these few figures go, women students have held their own. It is satisfactory to learn that the death rate during pupillage, which in Sir James Paget's series was 4 per cent., was halved in Sprigge's and Corner's series and was little more than 1 per cent. (8 in 700) among the students of this school.

Though a high place in the class list provides a good start and is *prima facie* ground for anticipating success in after life, it is of course no guarantee for women students any more than it is for men. Although many prize winners continue to be front rankers, early success is not without its possible danger; it may breed conceit and slacken effort, so that the highly placed may become extinguished by their distinction. An early failure is sometimes a blessing, however much it may be disguised. Another consolation for those who fail to find favour with examiners is that some students develop late and so at first do not compete on equal terms with their more brilliant rivals, though eventually they surpass them in the race of life. To the make-up of a capable medical practitioner professional knowledge is not the only property necessary: practical efficiency, presence of mind, wise discretion, sympathy, and a thorough understanding of human nature are other essentials. Academic success may be obtained by mental ability, industry, and a temperamental power of making the best of knowledge thus acquired. Book knowledge may therefore go further in the examination room than in the daily round of practical life.

Women are on the average better students than their brethren, they work harder and take more pains, being more whole-mindedly concentrated on the subject in hand—so much so, indeed, that many of them find it difficult to throw off their work for a time and therefore tend to get stale and mentally dyspeptic. The power of detachment, by which mental concentration can be transferred from one thought-tight compartment to another, is of infinite value. Another aspect of detachment was so charmingly painted by the late H. D. Ellis (*Poems, Mathematical and Miscellaneous*, 1912) that it may be reproduced here, even if it be a little apart from this immediate context:

"Greatly prize the gift of humour,  
Light divine of human mind;  
Live unmoved by transient rumour,  
Harbour not a thought unkind.  
So will trouble, life's consumer,  
Break, like bubble in the wind."

But to resume, the importance of cultivating a hobby, distraction, or avocation to balance and correct the more urgent claims of professional studies is a commonplace, yet like many dictates of common sense it is often ignored. Literature, music, art, and athletics are not only part of a liberal and humane education, but invaluable as a means of refreshment and of re-creating energy for the business of life. Just as there are burly athletes who never study, so are there pale students who go to the other extreme and thereby endanger their future by undermining both their mental and their physical efficiency. As a class women students are more prone than their brothers to over-

devotion and thus to narrow their intellectual outlook and their chest development; to them, therefore, it is not so necessary to insist on the obvious need for industry, what Sir William Osler in his charming *Aequanimitas* called "the Master-word in Medicine," as to remind them that the best student combines mental and physical prowess, and thus realizes the ideal of the *mens sana in corpore sano*. It has not uncommonly been urged in introductory addresses such as this that hard work alone seldom leads to a breakdown and that worry or some extraneous factor is the real cause; this is a rather overstated, though no doubt admirably meant, exhortation, and is perhaps more applicable to those whose life's work is free from the menace of the examination boggy than to the students, especially women, whose mental vision is too often focused anxiously in that direction. It may be partially true when hard work can be secured from worry, but even then the interference with physical health must be taken into consideration. Much, therefore, turns on how the work is done, wisely or otherwise, and on the physical and mental make-up, so to speak, of the individual; women students especially should remember that there are occasions when the willing spirit should be mindful of the weakness of the flesh, and that as a class they are more liable to mental breakdown from overwork.

There are disadvantages in reading too much; as epigrammatically put by Sir James Kingston Fowler, "if you want to be original you must not read too much." This may sound like an invitation and encouragement to idleness in the face of the enormous amount that medical students have now to assimilate, and really to be a more useful admonition to those who are qualified to practise than to students beginning the rudiments of science. Though at first sight a paradoxical statement, excessive reading may be a peculiar form of laziness in so far as it is a means of escape from that much avoided process of thinking for oneself: how much easier it is to look up at once in a book the solution of a problem than to attempt to worry it out first in one's mind. The real moral, therefore, is to read wisely and to spend time in thinking over and applying to actual cases what has been read, instead of aiming at a facile familiarity with the windy doctrines of many textbooks. The danger of over-reading may at first sight seem chimerical, but it largely consists in using up time which would be better spent in thought and practical observation. At the present time radiograms and laboratory tests so greatly assist and often appear to decide the diagnosis that careful study of the patient is in serious danger of being neglected. The experience gained from one good clinical case is worth half a dozen textbook descriptions and is likely to be remembered much longer. The habit of accurate observation is not easily acquired; reading may tell you what to look for, but it cannot take the place of observation which proverbially brings wisdom—a far more valuable property than mere learning. The bookish student may repeat like a parrot the words of the wise without understanding them and break down woefully in practical work. There are several methods of reading, and by far the best is that which is accompanied by thought and by an analytical abstract of what is read; thus impressing the argument on the mind at the time and providing a concise précis of the subject for future reference. It is a mistake to read too long at a time at one subject, for this leads to mental fatigue, to which girls are more susceptible than their brothers.

In the opinion of experienced teachers, such as Professor W. D. Halliburton, while the average female student is on the whole superior to the average male student, possibly because the women who take up science are usually keener and feel a call to do so, the best women students are not so able as the best men students. This estimate indeed is on the same lines as the generally accepted view that true genius is even rarer in women than in men. Now whether this is due to inherent sex peculiarities or is the result of long-continued dominance of the male sex or to both these factors is an academic though interesting question.

It has been stated that each individual contains the potential elements of both sexes, one being of course dominant, though varying in individuals, probably in corre-

spondence with the influence of the hormones from the endocrine glands, especially the gonads. According to Otto Weiniger and W. L. George "there are no men, there are no women, but only sexual majorities." Although this view may not now be accepted and the endocrine glands are now considered to influence emotional rather than intellectual activities, there are most remarkable individual differences among members of the same sex, and everyone has known feminine men and virile women. As all kinds make a world, provision must be made for all, and it is among the masculine minded women that variability tending to the production of genius or of special ability may be anticipated. Perhaps too much stress has been laid on the small number of women doctors who have made epoch-making advances and on the view (correct as it may be) that as a rule women students are less original in mind, less inclined to initiate new lines of thought, and are more successful as conscientious followers than as independent leaders in research. There have been exceptions in the past to any such rule, there are more in the present, and in the future there can be little doubt that women workers will take an increasingly larger part in research, whether independently or under the inspiration of a great teacher. The establishment at the Royal Free Hospital of a whole-time Professor (Dr. Louise McIlroy) of Obstetrics and Gynaecology with a clinical unit is a notable step in advance and offers opportunities for realization of this belief.

But after all, success in our profession is not measured solely by ability for research and the discovery of truth, any more than by the accident of popular approval that brings with it wealth and a prominent place in the limelight. There is the satisfaction of honest work quietly carried out, with the knowledge that duty, hard and unremunerative though it may be, has been done. The truest success in the art of healing does not, as it does in pure science, depend solely on intellectual pre-eminence; there are the properties of the heart as well as those of the brain, perhaps best expressed in the familiar text, "Though I have the gift of prophecy (prognosis), and understand all mysteries (diagnosis), and all knowledge; and though I have all faith, so that I could remove mountains (confidence and operative skill), and have not charity, I am nothing" (I Corinth. xiii, 2). In the keen pursuit of scientific diagnosis, which is a purely intellectual process without room for the emotions or sympathy, there is a risk that the patient may be regarded and treated as a machine out of order, and thus the plight and feelings of a suffering fellow creature may be forgotten. A doctor should add to the abilities of an engineer and chemical expert of the human body some of the attributes of the broad-minded churchman. Sympathy demands imagination, and both of these specially feminine properties should be preserved as valuable assets in our profession, and not transformed into callousness by contact with the naked and often repulsive aspects of a doctor's life. Imagination should supply an insight into the mind of the patient and an understanding of the fears and anxieties of those who come to be cured. Without this conception of the patient's point of view the student may think only of the diagnostic problem and forget the human aspects. The influence of cheerfulness and of reasonable optimism on the sick should be ever borne in mind; yet this may easily be forgotten in the presence of dour reserve even amounting to bad manners, really due to the patient's worries and self-consciousness. With a cheerful manner should be combined a degree of concentration sufficient to convince the patient that his condition is receiving serious attention; it is hardly necessary to carry this so far as to give the impression to every patient that he is the only person who counts in this world. Tact and self-oblivion, essentially feminine properties, are of great value in medical practice, and should therefore be preserved by medical women and not, as perhaps is sometimes the case, repressed or discarded by the more vigorously minded. As scope for the emotions and human interest are important factors in rendering work congenial to women, this would appear to be an additional reason why most women are more suited for practice than for pure laboratory research.

A good memory and methodical habits are important traits in attaining success. No doubt some effort is

necessary to acquire the habit of noting down on the spot, or at least on the same day, the details of a case; yet this occupies little time, and this supplement to memory, or to adopt Addington Symonds's phrase this "mechanical memory," may in future emergencies—for example, legal proceedings, or certificates—be of the greatest use. In addition to writing a little every day some time should be given each day to reading, both of a professional and of a general kind, so as to keep up to date and maintain the general culture so essential to the medical practitioner, whose motto should be "Nihil humanum a me alienum puto." As an element in success accuracy and punctuality should not be overlooked; a present doyen of the profession when a young man on arriving at one of his first consultations was met by a senior surgical colleague standing watch in hand on the doorstep and the remark that a habit of being five minutes late boded badly for future success; this hint, gentle or otherwise, had a lasting effect and the resulting meticulous punctuality no doubt played some part in his triumphal career. A more difficult factor in avoiding failure is to be prepared for whatever emergencies or calls may occur in practice; this demands thoughtful foresight and some imagination. The whims of chance of course influence the future in ways that to some onlookers may seem even unfair, but probably many of the "lucky ones" are so in virtue of their ability to turn opportunities as they arise into solid advantages.

Though this address is headed "The Problem of Success for Medical Women," at this comparatively early stage of women's activity in the medical profession it is not wise, and indeed is hardly possible, to say the last word on this subject. That medical women have succeeded in the face of great difficulties is shown by recent history, and now that circumstances have been so vastly improved by the pioneers the road has been opened to their successors. The way, no doubt, is long and beset by difficulties; patience, perseverance, and wisdom are necessary though exacting requisites, but there is encouraging evidence that by these means women may look forward to a just meed of success.

## REFERENCES.

<sup>1</sup> Smith, Sydney: *Edinburgh Review*, 1810, xxx. <sup>2</sup> Ludovici, A.: *Woman, A Vindication*, p. 359, 1923.

## THE REGULATING AND REFLEX PROCESS.\*

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## PART I.—THE ANATOMICAL AND PHYSIOLOGICAL UNITS.

THAT the early symptoms of disease manifest themselves by alterations in the normal reflexes of the body is a postulate laid down by Sir James Mackenzie. The truth or otherwise of this hypothesis is being investigated at the St. Andrews Institute for Clinical Research, but before any steps can be taken in its application to the study of abnormal conditions it is essential that a clear understanding be arrived at of what the normal reflex really signifies, and of the general principles which govern its production. Probably no branch of physiology has made greater progress in recent years than that relating to the nervous system. Many problems still await solution, but general principles are emerging which are of far-reaching importance.

A brief review of the general principles underlying reflex action is essayed in these articles, and an attempt is made to extend their application to the study of abnormal conditions. The author is conscious that some of his interpretations of ascertained facts are open to criticism, and may be modified in the course of time. There can be no finality in a subject of this importance, but a statement of the general position as it seems at present to members of the St. Andrews Institute may be of value.

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## THE ANATOMICAL UNIT.

The anatomical unit of the nervous system is the neurone, which is the nerve cell with its processes, dendrites, and axis cylinder. Chains of such units make up the nervous system. The neurones do not blend with one another anatomically at their junctions but are separated by a minute interspace in which there is a material endowed with distinct and highly important properties. This is the synapse or "synaptic membrane."

## The Reflex.

It is improbable that any one anatomical unit in the nervous system can under normal conditions function by itself in the transmission of nerve impulses. For most purposes at least two neurones with an intervening synapse appear to be necessary to make up a functional unit. One of these neurones must be an afferent one whose province it is to transmit the nerve impulses excited in it by the stimulation of specialized end-organs or "receptors." The other neurone is an efferent one, and conducts the nerve impulses to some tissue or organ, which responds by whatever action characterizes it. Between the reacting organ or "effector" and the ending of the efferent neurone there is another minute interval occupied by a material somewhat similar in its properties to that of the synapse. Such an arrangement of anatomical units forms the basis of the simplest functional unit, which is the "reflex." An apparent exception to this statement is seen in the case of the so-called "axon reflex," where an afferent neurone sends branches to neighbouring arterioles and capillaries. But in the axon reflex the nerve impulses arise as usual at the receptors and pass to the central nervous system as well as to the blood vessels. The axon reflex appears to be a complete physiological unit in that a suitable stimulus applied to the skin produces a local vaso-dilatation of the blood vessels by the passage of nerve impulses over part of the afferent neurone only. But we do not know if this is the sole result of the stimulus, for the same neurone conducts the nerve impulses to the central nervous system, and sensation and reflex action may result in addition to the axon reflex. The axon reflex illustrates a principle of fundamental importance, because it shows that nerve impulses set up by a receptor in an afferent neurone may be productive of more than one kind of end-result. In general it may be said that the reflex is the physiological or functional unit, and that the reactions of the nervous system are built up of such units.

The modern view of the function of the neurone is that it conducts nerve impulses. It does so in response to stimulation, just as a muscle cell develops a state of tension in response to stimulation. But the nervous system is more than a highly elaborate conducting mechanism. The neurone conducts, but it manifests some degree of energy in doing so, though the amount of that energy is very small. There is no evidence that under normal conditions the nerve impulse dies down or undergoes a decrement in the neurone. The nerve impulse may be extinguished in the central nervous system, but such extinction always takes place at the junctions between the neurones—namely, in the synapses—and not in the neurone itself. On the other hand, nerve impulses set up in an afferent neurone may spread widely in the central nervous system, and the total sum of the resulting discharges by the efferent neurones may be greatly increased.

## Rhythmical Activity of the Neurone.

Single, unrepeatable nerve impulses do not, as such, find a passage through the central nervous system. In the quickest voluntary movement possible the muscular contraction is due to more than one nerve impulse, and there is evidence that the efferent neurones supplying voluntary muscle have a rhythm of discharge of about 50 per second. It is not known whether all neurones possess the property of rhythmical discharge, or what differences occur among them. It has been shown by Sherrington that if a stimulus applied to the afferent neurone in a reflex arc is sufficiently strong the efferent neurone has an after-discharge, and the muscle supplied by it remains in activity